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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/294,969	04/19/99	MARGULIS	N P410315US

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EXAMINER	
TRAN,T	

ART UNIT	PAPER NUMBER
2714	9

DATE MAILED: 06/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Supplemental

Office Action Summary

Application No.	Applicant(s)
09/294,259	NEAL MARGULIS
Examiner	**Group Art Unit**
Trang U.Tran	2714

☒ Responsive to communication(s) filed on *Apr 13, 2000*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *50-97* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *50-97* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *2 and 3*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

A preliminary amendment was filed 4/13/00. It was not associated with the application at the time the previous Office Action mailed 4/26/00 was prepared. Thus, the preliminary amendment was not considered previously.

The insertion at page 6, line 12 was not specified. Clairfication is needed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 50-51, 53-56, 59-63, 65-67, 74-75 and 84-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181).

In consider claim 50, Cooper et al. disclose all claimed subject matter, note 1) the claimed a display input processor (DIP) coupled to a databus, said DIP comprising an input data connector and a first plurality of processing modules configured to receive bitstream data input and reconstruct said input to generate DIP outputs is met by the modem 87, the parallel adapter 76 and the network adapter 85 (Fig. 1, col. 6, lines 7-40), 2) the claimed a display output processor (DOP) coupled to said databus, said DOP comprising a second plurality of processing modules configured to process said DIP outputs for generate DOP outputs is met by the cache controller 28, the math coprocessor 27, the bus control timing 38, the buffer 32 and the cache 30 (col. 4, lines 22-45), 3) the claimed a buffer memory coupled to said databus, configured to store said DIP outputs and said DOP outputs, and to provide said video stream image data to said display device is met by the buffer 66 (col. 5, lines 27-38).

However, Cooper et al. lacks to explicitly disclose the claimed DOP comprises a geometric transformation module. Szeliski et al. teaches that an apparatus for construction of panoramic mosaic image having geometric transformation module for geometrically transforming the image data (col. 9, lines 9-29) to avoid using cylindrical or spherical coordinates for constructing the mosaic by associating a rotation matrix with each input image and to allow any user to be able to "paint" a full view panoramic mosaic with a simple hand-held camera or

camcorder. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the geometric transformation module as taught in Szeliski et al. in order to construct and render panoramic mosaic images from a sequence of still images, video images or scanned photographic images (col. 1, lines 9-11 of Szeliski et al.).

The combination of Cooper et al. and Szeliski et al does not explicitly disclose the claimed post GT filtering module. The capability of using low pass filtering to filter the high frequency noise is well known and old in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the combination of Cooper et al. and Szeliski et al. with the old and well known low pass filter in order to increase the quality of the signal to be displayed by filtering the high frequency noise.

In consider claim 51, the claimed wherein the DOP comprises a display map memory (DMM) is met by nonvolatile RAM 74 (col. 5, lines 42-50).

In consider claim 53, Cooper et al. disclose all the features of the invention as discussed in claim 50 above except for providing wherein said geometric transformation module is configured to geometrically transform said DIP inputs. Szeliski et al. teaches an apparatus for construction of panoramic mosaic image having geometric transformation module for geometrically transforming the image data (col. 9, lines 9-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the geometric transformation module as taught in Szeliski et al. in order to construct and render panoramic mosaic images

from a sequence of still images, video images or scanned photographic images (col. 1, lines 9-11 of Szeliski et al.).

In consider claim 54, the claimed wherein said geometric transformation module comprises a spatial transformation module configured to redefining spatial relationships between image pixels is met by col. 9, lines 30-57 of Szeliski et al.; an alignment and rotation correction module configured to repositioning image pixels is met by col. 14, lines 46-60 of Szeliski et al.; a focus correction module configured to correct image defocus is met by col. 16, lines 24-65 of Szeliski et al.; and a distortion correction module configured to correct image distortions is met by col. 24, line 48 to col. 25, line 43 of Szeliski et al..

In consider claim 55, the claimed wherein said alignment and rotation correction module is configured to rotate images is met by col. 14, lines 46-60 of Szeliski et al..

In consider claim 56, the claimed wherein said focus correction module is configured to correct said image for defocus resulting from image deformation and from display optics is met by col. 15, line 30 to col. 16, line 65 of Szeliski et al..

In consider claim 57, the claimed wherein said spatial transformation module is configured to use frame information and motion tracking information from multiple input images to increase resolution of images is met by col. 25, lines 7-54 and col.13, lines 2-17 of Szeliski et al..

In consider claim 59, the claimed wherein said geometric transformation module is configured to improves skew, tangential symmetry, aspect angle, and scale-related distortions of the display images is met by col. 31, line 53 to col. 32, line 42 of Szeliski et al..

In consider claim 60, the claimed wherein said geometric transformation module is figured to corrects environment-introduced image artifacts is met by col. 27, lines 42-59 of Szeliski et al..

In consider claim 61, the claimed wherein said geometric transformation module is configured to correct artifacts resulting from non-uniformity of the display device is met by col. 27, lines 15-59 of Szeliski et al..

In consider claim 62, the claimed wherein said geometric transformation module comprises a texture mapping module is met by col. 27, lines 14-35 of Szeliski et al..

In consider claim 63, the claimed wherein said DOP is configured to use a mathematical formula for providing DOP outputs suitable for a panoramic projection is met by col. 27, lines 14-35 of Szeliski et al..

In consider claim 65, the claimed wherein said geometric transformation module comprises a multi-frame correlation module is met by col. 26, lines 12-52 of Szeliski et al..

In consider claim 66, the claimed wherein said multi-frame correlation module is configured to select motion compensation information from either a selected display image or a motion estimator output is met by col. 9, lines 1-30 of Szeliski et al..

In consider claim 74, the claimed wherein said DIP comprises an Image Reconstruction module configured for performing multiframe reconstruction to increase image resolutions is met by col. 13, lines 2-17 of Szeliski et al..

In consider claim 75, the claimed wherein said multiframe reconstruction module is configured to use motion estimation vectors from an input bitstream to correlate multiple images is met by col. 26, lines 12-52 of Szeliski et al..

Claim 84 is rejected for the same reason as discussed in claim 50.

Claim 85 is rejected for the same reason as discuss in claim 53.

Claims 86-89 are rejected for the same reason as discuss in claim 54.

Claim 90 is rejected for the same reason as discuss in claim 65.

Claim 91 is rejected for the same reason as discuss in claim 59.

In consider claim 92, the claimed wherein processing said received bitstream information to generate DIP outputs comprises processing with an image reconstruction module that utilizes or masks motion estimation vectors based on matching accuracy of motion estimation blocks associated with the motion estimation vectors is met by col. 26, lines 12-52 of Szeliski et al..

In consider claim 93, the claimed wherein utilizing motion estimation vectors comprises processing until sub-block motion estimation is discerned is met by col. 26, lines 12-52 of Szeliski et al..

In consider claim 94, the claimed wherein utilizing motion estimation vectors comprises using enhanced matching processing techniques which include rotation, scale and sheer techniques is met by col. Col. 13, lines 2-60 and col. 14, lines 46-60 of Szeliski et al..

3. Claims 76-83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szeliski et al. (US. Patent No. 6,044,181) and further in view of Frankenbach (US. Patent No. 4,894,653).

In consider claimed 76, Szeliski et al. disclose all claimed subject matter, note 1) the claimed a display device, coupled to said display system, for viewing image data is met by col. 9, lines 1-4, 2) the claimed a geometric transformation GT module coupled to said display device, said geometric transformation module configured to precondition said bitstream data using geometric transformations to compensate for characteristics of said display device is met by col. 6, line 54 to col. 7, line 11. However, Szeliski et al. lacks to explicitly disclose the claimed a temporal gamma processing TGP module couled to said display device, said TGP module configured to determine an output intensity value for each color component output to said display device.

Frankenbach teaches an apparatus for generating video signals having a temporal gamma processing TGP module coupled to the display device and wherein the TGP module configued to determine an output intensity value for each color component output to the display device (col. 3, lines 13-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the TGP module as taught in Frankenback into Szeliski et al.'s system in order to

increase the quality of the signal to be displayed by eliminating the flicker in the displayed signal (col. 2, lines 3-9 of Frankenbach).

In consider claim 77, the claimed a plurality of look-up tables, wherein said TGP is configured to use at least one of said plurality of tables for determining color correction is met by ten memory planes 36 (col. 3, lines 30-55 of Frankenbach).

In consider claim 78, the claimed wherein said geometric transformation module comprises a spatial transformation module configured for redefining spatial relationships between image pixels derived from said bitstream information is met by col. 9, lines 30-57 of Szeliski et al..

In consider claim 79, the claimed wherein said geometric transformation module comprises an alignment and rotation correction module configured for repositioning said image pixels is met by col. 14, lines 46-60 of Szeliski et al..

In consider claim 80, the claimed wherein said geometric transformation module comprises a focus correction module configured for correcting image defocus is met by col. 16, lines 24-65 of Szeliski et al..

In consider claim 81, the claimed wherein said geometric transformation module comprises a distortion correction module configured for correcting image distortions is met by col. 24, line 48 to col. 25, line 43 of Szeliski et al..

In consider claim 82, the claimed wherein said geometric transformation module comprises a multi-frame correlation module configured for performing motion-compensated frame rate conversion is met by col. 26, lines 12-52 of Szeliski et al..

In consider claim 83, the claimed wherein said geometric transformation module is configured to improves skew, tangential symmetry, aspect angle, and scale-related distortions of said image data is met by col. 31, line 53 to col. 32, line 42 of Szeliski et al..

4. Claims 64 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181) as applied to claim 50 above, and further in view of Kitamura et al (US. Patent 5,936,628).

In consider claim 64, the combination of Cooper et al. and Szeliski et al. discloses all the features of the instant invention except for providing where said module is configured to use texture mapping to perform transitions for multi-picture displays. Kitamura et al teach that the 3D images can be displayed on the multi-picture format (col. 7, lines 28-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the display unit 4 as taught by Kitamura et al into Cooper et al.'s system in order to view plurality of image on one single display unit.

In consider claim 72, the claimed configured to simultaneously receive multiple video streams and process such streams to provide an image from each video stream in a single display using Picture-in-Picture and windowing controls is met by col. 7, lines 28-43 of Kitamura et al.

5. Claims 58 and 67-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181) as applied to claims 50 above, and further in view of Sporer et al. (US. Patent 5,883,670).

In consider claim 58, the combination of Cooper et al. and Szeliski et al. discloses all the features of the instant invention except for providing a compressed bitstream. Sporer et al. teaches computer systems have video encoders for compressing video signal (col. 2, lines 21-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the MPEG and JPEG encoders into Cooper et al.'s system in order to reduce the bandwidth of the video signal and to reduce the storage capacity of Cooper et al..

In consider claim 67, the combination of Cooper et al. and Szeliski et al. discloses all the features of the instant invention except for wherein said DIP is configured to receive data as a coded bitstream, said bitstream comprising image object information, image object depths , and image motion tracking information. Sporer et al. teaches computer systems have video encoders for compressing video signal (col. 2, lines 21-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the MPEG and JPEG encoders into Cooper et al.'s system in order to reduce the bandwidth of the video signal and to reduce the storage capacity of Cooper et al..

In consider claim 68, the claimed configured to provide image data for 3D and/or a panoramic display device is met by col. 7, lines 1-11 and col. 9, lines 1-4 of Szeliski et al..

In consider claim 69, the claimed configured to uses said image object information to reposition objects in output coordinates of said panoramic display device is met by col. 11, lines 1-12 of Szeliski et al..

In consider claim 70, the combination of Cooper et al., Szeliski et al., and Sporer et al. does not specifically disclose that the claim configured to output image data to film. Szeliski et al. also disclose in col. 1, lines 35-37 that the panoramic image can be recorded onto a long film strip using a panoramic camera. It would have been obvious to one of ordinary skill in the art at the time of the invention to record the panoramic images of Szeliski et al. onto a long film strip for later use.

6. Claim 52 and 96-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181) and further in view of Frankenbach (US. Patent 4,894,653).

In consider claim 52, he combination of Cooper et al. and Szeliski et al. disclose all the features of the instant invention except for providing the claimed wherein said DMM is configured to store system configuration information which includes intensity values for setup of the display device. Frankenbach teaches an apparatus for generating video signals having a plurality of bit map memory arrays, the number of bit map memory arrays related to the number of variations of color intensity for each pixel at the display device (col. 5, lines 40-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the

bit map memory arrays as taught by Frankenbach in order to increase the quality of the image to be displayed (col. 2, lines 16-18 of Frankenbach).

In consider claim 96, the combination of Cooper et al. and Szeliski et al. discloses all the features of the instant invention except for providing the claimed wherein processing said DIP output comprises utilizing a temporal gamma processing TGP module to determine for each color component, an intensity value to output to said display device.

Frankenbach teaches an apparatus for generating video signals having a temporal gamma processing TGP module coupled to the display device and wherein the TGP module configued to determine an output intensity value for each color component output to the display device (col. 3, lines 13-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the TGP module as taught in Frankenback into the combination of Cooper et al. and Szeliski et al. in order to increase the quality of the signal to be displayed by eliminating the flicker in the displayed signal (col. 2, lines 3-9 of Frankenbach).

In consider claim 97, the claimed wherein utilizing a TGP module to determine an intensity value comprises utilizing a desired intensity value and a previous frame intensity value is met by col. 3, lines 13-55 of Frankenbach.

7. Claim 95 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181) as applied to claim 92 above, and further in view of Aritake et al. (US. Patent 5,872,590).

The combination of Cooper et al. and Szeliski et al. discloses all the features of the instant invention except providing the claimed wherein processing with an image reconstruction module comprises processing bitstream information comprising multiple images from multiple cameras. Aritake et al teach an apparatus for allowing stereoscopic video image to be observed having the capability of receiving two images from two cameras which present a 3D stereoscopic image (col. 10, lines 57-67 and col. 16, lines 43-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the capability of obtain and display the 3D stereoscopic images as taught by Aritake et al in order to allow 3D stereoscopic image to be observed (col. 2, lines 59-60 of Aritake et al.).

8. Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al. (US. Patent 6,044,181) and Sporer et al. (US. Patent 5,883,670) as applied to claim 67 above, and further in view of Aritake et al (US. Patent 5,872,590).

The combination of Cooper et al., Szeliski et al., and Sporer et al. discloses all the features of the instant invention except for providing the claimed configured to receive a coded input that represents two images and use said coded input to present a 3D stereoscopic image on said display device. Aritake et al teach an apparatus for allowing stereoscopic video image to be observed having the capability of receiving two images which present a 3D stereoscopic image (col. 16, lines 43-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the capability of obtain and display the 3D stereoscopic images as

taught by Aritake et al in order to allow 3D stereoscopic image to be observed (col. 2, lines 59-60 of Aritake et al.).

9. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cooper et al. (US. Patent 5,920,688) in view of Szeliski et al.(US. Patent 6,044,181) and Kitamura et al (US. Patent 5,936,628) as applied to claim 72 above, and further in view of Kazami et al. (US. Patent 6,035,093).

The combination of Cooper et al., Szeliski et al., and Kitamura et al discloses all the features of the instant invention except for providing wherein said geometric transform module is configured to perform transition effects between different video streams such transition effect include fades , blends, wipes and warps. Kazami et al. teaches an image file editing apparatus having capabilities of fades and wipes (col. 9, lines 1-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the editing means 4 as taught in Kazami et al. in order to increase the quality of the video signal by editing the video signal.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Urbanus et al. (US. Patent No. 5,442,411) disclose displaying video data on a spatial light modulator with line doubling.

Inoue et al. (US. Patent No. 5,832,085) disclose method and apparatus storing multiple protocol, compressed audio video data.

Bonde et al. (US. Patent No. 5,764,311) disclose image processing apparatus.

Hegg (US. Patent No. 5,748,264) discloses distortion corrected display.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on Monday to Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John K. Peng, can be reached on (703)305-4702.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-6306, (for formal communications intended for entry)

Or:

(703) 308-6296 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

TT TT

June 4, 2000

JOHN K. PENG
SUPERVISORY PATENT EXAMINER
GROUP 2700